

SEQUENCE LISTING

		, JUTTA R, JOHN						
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					cgg Arg											441
_		_	_		tcg Ser 55								_	_	-	489
	-	_	_	_	ctg Leu	-	_	_		_	_	_	_	_		537
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					ctg Leu											921
					aac Asn 215											969

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												ctg Leu				3361
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tcg Ser 105	Arg					r Va				ln T		gct (Ala				3733
cag Gln 107	Se					e C				sp Ā		gtg (Val 1				3778

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					aag Lys 1105						Lys				3868
					gag Glu 1120										3913
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					ggc Gly 1195										4138
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aac go Asn Al 1340					gtc Val 1345										4588
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35 40 45

Glu Lys Ile Val Val Glu Ser Ile Arg Gln Glu Phe Gly Val Ser Lys 50 55 60

Gln Pro Val Met Asp Ala Leu Arg Arg Leu Ser Ser Asp Lys Leu Val 65 70 75 80,

His Ile Val Pro Gln Val Gly Cys Glu Val Val Ser Tyr Ala Pro Arg 85 90 95

Glu Val Glu Asp Phe Tyr Thr Leu Phe Gly Gly Phe Glu Gly Thr Ile 100 105 110

Ala Ala Val Ala Ala Ser Arg Arg Thr Glu Ala Gln Leu Leu Glu Leu 115 120 125

Asp Leu Ile Ser Ala Arg Val Asp Ala Leu Ile Thr Ser His Asp Pro 130 135 140

Val Val Arg Ala Arg Gly Tyr Arg Val His Asn Arg Glu Phe His Ala 145 150 155 160

Ala Ile His Ala Met Ala His Ser Arg Ile Met Glu Glu Thr Ser Gln
165 170 175

Arg Met Trp Asp Leu Ser Asp Phe Leu Ile Asn Thr Thr Gly Ile Thr 180 185 190

Asn Pro Leu Ser Ser Ala Leu Pro Asp Arg Gln His Asp His His Glu 195 200 205

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Asn Ala Gln Leu Pro Ser 245

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Thr Thr Pro Thr Ser Pro Thr Lys Thr Ser Pro Leu Arg Val Ala Met 50 55 60

Ala Ser Phe Ile Gly Thr Thr Val Glu Tyr Tyr Asp Phe Phe Ile Tyr 65 70 75 80

Gly Thr Ala Ala Ala Leu Val Phe Pro Glu Leu Phe Phe Pro Asp Val 85 90 95

Ser Ser Ala Ile Gly Ile Leu Leu Ser Phe Ala Thr Phe Ser Val Gly
100 105 110

Phe Leu Ala Arg Pro Leu Gly Gly Ile Val Phe Gly His Phe Gly Asp 115 120 125

Arg Val Gly Arg Lys Gln Met Leu Val Ile Ser Leu Val Gly Met Gly 130 135 140

Ser Ala Thr Val Leu Met Gly Leu Leu Pro Gly Tyr Ala Gln Ile Gly 145 150 155 160

Ile Ala Ala Pro Ile Leu Leu Thr Leu Leu Arg Leu Val Gln Gly Phe
165 170 175

Ala Val Gly Gly Glu Trp Gly Gly Ala Thr Leu Met Ala Val Glu His 180 185 190

Ala Pro Thr Ala Lys Lys Gly Phe Phe Gly Ser Phe Ser Gln Met Gly 195 200 205

Ala Pro Ala Gly Thr Ser Val Ala Thr Leu Ala Phe Phe Ala Val Ser 210 215 220

Gln Leu Pro Asp Glu Gln Phe Leu Ser Trp Gly Trp Arg Leu Pro Phe 225 230 235 240

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Leu Ala Glu Ser Pro Asp Phe Ala Glu Val Lys Ala Gln Ser Ala Val
260 265 270

Val Arg Met Pro Ile Ala Glu Ala Phe Arg Lys His Trp Lys Glu Ile 275 280 285

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Cys Met Ala Tyr Leu Val Ser Tyr Gly Thr Thr Val Ala Gly Ile Ser 305 310 315 320

Arg Thr Phe Ala Leu Ala Gly Val Phe Val Ala Gly Ile Val Ala Val 325 330 335

Leu Leu Tyr Leu Val Phe Gly Ala Leu Ser Asp Thr Phe Gly Arg Lys 340 345 350

Thr Met Tyr Leu Leu Gly Ala Ala Met Gly Val Val Ile Ala Pro 355 360 365

Ala Phe Ala Leu Ile Asn Thr Gly Asn Pro Trp Leu Phe Met Ala Ala 370 375 380

Gln Val Leu Val Phe Gly Ile Ala Met Ala Pro Ala Ala Gly Val Thr 385 390 395 400

Gly Ser Leu Phe Thr Met Val Phe Asp Ala Asp Val Arg Tyr Ser Gly
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Val Ser Ile Gly Tyr Thr Ile Ser Gln Val Ala Gly Ser Ala Phe Ala 420 425 430

Pro Thr Ile Ala Thr Ala Leu Tyr Ala Ser Thr Asn Thr Ser Asn Ser 435 440 445

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Val Ala Asn Ser Pro Arg Ala His Ile Thr Asn Gln Arg Ala Val Glu 50 55 60

Val Leu Arg Asp Leu Gly Val Glu Asp Glu Ala Arg Asn Tyr Ala Thr 65 70 75 80

Pro Trp Asp Gln Met Gly Asp Thr Leu Phe Thr Thr Ser Leu Ala Gly
85 90 95

Glu Glu Ile Val Arg Met Gln Thr Trp Gly Thr Gly Asp Ile Arg Tyr
100 105 110

Gly Asp Tyr Leu Ser Gly Ser Pro Cys Thr Met Leu Asp Ile Pro Gln 115 120 125

Pro Leu Met Glu Pro Val Leu Ile Lys Asn Ala Ala Glu Arg Gly Ala 130 135 140

Val Ile Ser Phe Asn Thr Glu Tyr Leu Asp His Ala Gln Asp Glu Asp 145 150 155 160

Gly Val Thr Val Arg Phe Arg Asp Val Arg Ser Gly Thr Val Phe Thr 165 170 175

Gln Arg Ala Arg Phe Leu Leu Gly Phe Asp Gly Ala Arg Ser Lys Ile 180 185 190

Ala Glu Gln Ile Gly Leu Pro Phe Glu Gly Glu Leu Ala Arg Ala Gly
195 200 205

Thr Ala Tyr Ile Leu Phe Asn Ala Asp Leu Ser Lys Tyr Val Ala His 210 215 220

Arg Pro Ser Ile Leu His Trp Ile Val Asn Ser Lys Ala Gly Phe Gly 225 230 235 240

Glu Ile Gly Met Gly Leu Leu Arg Ala Ile Arg Pro Trp Asp Gln Trp 245 250 255

Ile Ala Gly Trp Gly Phe Asp Met Ala Asn Gly Glu Pro Asp Val Ser 260 265 270

Asp Asp Val Val Leu Glu Gln Ile Arg Thr Leu Val Gly Asp Pro His 275 280 285

Leu Asp Val Glu Ile Val Ser Arg Ser Phe Trp Tyr Val Asn Arg Gln 290 295 300

- Trp Ala Glu His Tyr Gln Ser Gly Arg Val Phe Cys Gly Gly Asp Ala 305 310 315 320
- Val His Arg His Pro Pro Ser Ser Gly Leu Gly Ser Asn Thr Ser Met 325 330 335
- Gln Asp Ala Phe Asn Leu Ala Trp Lys Ile Ala Phe Val Val Lys Gly 340 345 350
- Tyr Ala Gly Pro Gly Leu Leu Glu Ser Tyr Ser Pro Glu Arg Val Pro 355 360 365
- Val Gly Lys Gln Ile Val Ala Arg Ala Asn Gln Ser Arg Lys Asp Tyr 370 375 380
- Ala Gly Leu Arg Glu Trp Phe Asp His Glu Ser Asp Asp Pro Val Ala 385 390 395 400
- Ala Gly Leu Ala Lys Leu Lys Glu Pro Ser Ser Glu Gly Val Ala Leu 405 410 415
- Arg Glu Arg Leu Tyr Glu Ala Leu Glu Val Lys Asn Ala Glu Phe Asn 420 425 430
- Ala Gln Gly Val Glu Leu Asn Gln Arg Tyr Thr Ser Ser Ala Val Val
 435 440 445
- Pro Asp Pro Glu Ala Gly Glu Glu Val Trp Val Arg Asp Arg Glu Leu 450 455 460
- Tyr Leu Gln Ala Thr Thr Arg Pro Gly Ala Lys Leu Pro His Ala Trp 465 470 475 480
- Leu Val Gly Ala Asp Gly Thr Arg Ile Ser Thr Leu Asp Val Thr Gly 485 490 495
- Lys Gly Met Met Thr Leu Leu Thr Gly Leu Gly Gly Gln Ala Trp Lys 500 505 510
- Arg Ala Ala Lys Leu Asp Leu Pro Phe Leu Arg Thr Val Val Val 515 520 525
- Gly Glu Pro Gly Thr Ile Asp Pro Tyr Gly Tyr Trp Arg Arg Val Arg 530 540
- Asp Ile Asp Glu Ala Gly Ala Leu Leu Val Arg Pro Asp Gly Tyr Val 545 550 555 560
- Ala Trp Arg His Ser Ala Pro Val Trp Asp Asp Thr Glu Ala Leu Thr 565 570 575
- Ser Leu Glu Asn Ala Leu Thr Ala Val Leu Asp His Ser Ala Ser Asp 580 585 590
- Asn Gly Asn Pro Ser Gly Thr Asn Glu Pro Gln Tyr Ser Thr Arg Ala 595 600 605

Val Pro Ile Val Val Pro His Val Thr Ala Glu Asp Ala Ala Pro Ala 610 615 620

Ser Ala Thr Arg Thr Thr Thr Val Glu Glu Asn Arg 625 630 635

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His Ala Arg Arg Phe Val Ala Asp Phe Ala Pro Asp Leu Ile Val Ile 35 40 45

Phe Ala Pro Asp His Tyr Asn Gly Val Phe Tyr Asp Leu Leu Pro Pro 50 55 60

Phe Cys Ile Gly Ala Ala Ala Gln Ser Val Gly Asp Tyr Gly Thr Glu 65 70 75 80

Ala Gly Pro Leu Asp Val Asp Arg Asp Ala Ala Tyr Ala Val Ala Arg 85 90 95

Asp Val Leu Asp Ser Gly Ile Asp Val Ala Phe Ser Glu Arg Met His 100 105 110

Val Asp His Gly Phe Ala Gln Ala Leu Gln Leu Leu Val Gly Ser Ile 115 120 125

Thr Ala Val Pro Thr Val Pro Ile Phe Ile Asn Ser Val Ala Glu Pro 130 135 140

Leu Gly Pro Val Ser Arg Val Arg Leu Leu Gly Glu Ala Val Gly Arg
145 150 155 160

Ala Ala Ala Lys Leu Asp Lys Arg Val Leu Phe Val Gly Ser Gly Gly

165 170 175

Leu Ser His Asp Pro Pro Val Pro Gln Phe Ala Thr Ala Pro Glu Glu
180 185 190

Val Arg Glu Arg Leu Ile Asp Gly Arg Asn Pro Ser Ala Ala Glu Arg 195 200 205

Asp Ala Arg Glu Gln Arg Val Ile Thr Ala Gly Arg Asp Phe Ala Ala 210 215 220

Gly Thr Ala Ala Ile Gln Pro Leu Asn Pro Glu Trp Asp Arg His Leu 225 230 235 240

Leu Asp Val Le	ı Ala Ser 245	Gly Asp	Leu Gl 25		Ile Asp		Trp 255	Thr	
Asn Asp Trp Pho		Gln Ala	Gly Hi 265	s Ser	Ser His	Glu 270	Val	Arg	
Thr Trp Ile Ala 275	a Ala Tyr	Ala Ala 280	Met Se	er Ala	Ala Gly 285	Lys	Tyr	Arg	
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cac gcc ggc ga His Ala Gly As 35									144
acc ggc cac gc Thr Gly His Al 50									192
cac ttc aac gt His Phe Asn Va 65									240
aag ccc gac ca Lys Pro Asp Hi	c ccg ctc s Pro Leu 85	gag atc Glu Ile	Lys Hi	ac tac is Tyr 90	atc gac Ile Asp	cag Gln	gtg Val 95	ctg Leu	288
cag ttg ctg ga Gln Leu Leu As · 10	p Ala Ile	ggc gtc Gly Val	gag aa Glu Ly 105	ag gcc ys Ala	tcg ttt Ser Phe	tcc Ser 110	gly aaa	gag Glu	336

tct ctc Ser Leu				_		_	_				_				384
aag gtc Lys Val 130	_							_				_			432
cct cag Pro Gln 145		_	_	_				_	_	_	_			_	480
gac ccg Asp Pro															528
gac ccg Asp Pro		_	_		-		_		_				-		576
ttc cag Phe Gln															624
cag gac Gln Asp 210	Leu	_		-	_			-			_	_			672
aac ggc Asn Gly 225		-				-		_				_	_		720
tcc ggt Ser Gly	-	-	_	-	_	_	_		_				_		768
gcc aag Ala Lys	_	_		_			-					_			816
gac ccc Asp Pro					_	_		_	_					_	864
agc tga Ser															870
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- His Ala Gly Asp Ser Ser Lys Pro Thr Leu Ile Leu Leu His Gly Ile
 35 40 45
- Thr Gly His Ala Glu Ala Tyr Val Arg Asn Leu Arg Ser His Ser Glu
 50 60
- His Phe Asn Val Trp Ala Ile Asp Phe Ile Gly His Gly Tyr Ser Thr 65 70 75 80
- Lys Pro Asp His Pro Leu Glu Ile Lys His Tyr Ile Asp Gln Val Leu 85 90 95
- Gln Leu Leu Asp Ala Ile Gly Val Glu Lys Ala Ser Phe Ser Gly Glu
 100 105 110
- Ser Leu Gly Gly Trp Val Thr Ala Gln Phe Ala His Asp His Pro Glu
 115 120 125
- Lys Val Asp Arg Ile Val Leu Asn Thr Met Gly Gly Thr Met Ala Asn 130 135 140
- Pro Gln Val Met Glu Arg Leu Tyr Thr Leu Ser Met Glu Ala Ala Lys 145 150 155 160
- Asp Pro Ser Trp Glu Arg Val Lys Ala Arg Leu Glu Trp Leu Met Ala 165 170 175
- Asp Pro Thr Met Val Thr Asp Asp Leu Ile Arg Thr Arg Gln Ala Ile 180 185 190
- Phe Gln Gln Pro Asp Trp Leu Lys Ala Cys Glu Met Asn Met Ala Leu 195 200 205
- Gln Asp Leu Glu Thr Arg Lys Arg Asn Met Ile Thr Asp Ala Thr Leu 210 215 220
- Asn Gly Ile Thr Val Pro Ala Met Val Leu Trp Thr Thr Lys Asp Pro 225 230 235 240
- Ser Gly Pro Val Asp Glu Ala Lys Arg Ile Ala Ser His Ile Pro Gly 245 250 255
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Ser

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                                                                  120
acctectegg attecattge ecagetatet gteactteat egaaaggaca gtagaaaagg
                                                                  180
                                                                  240
aagatggctt ctacaaatgc catcattgcg ataaaggaaa ggctatcgtt caagaatgcc
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tctaccgaca gtggtcccaa agatgtaccc ccaccacga ggaacatcgt ggaaaaagaa
gacgttccaa ccacgtcttc aaagcaagtg gattgatgtg atatctccac tgacgtaagg
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470
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